Drinking Water Quality

A REPORT TO THE COMMUNITY 2006

Seattle Public Utilities

Seattle Public Utilities
700 Fifth Avenue, Suite 4900
P.O. Box 34018
Seattle, WA 98124-4018

PRESORTED
STANDARD
US POSTAGE PAID
SEATTLE, WA
PERMIT NO. 2129

For translation services please call 206-684-3000.

如需要口譯服務，請撥電話號碼206-684-3000.

통역 서비스를 원하시면 206-684-3000으로 전화하세요.

Wixii turjubaan afka ah ku saabsan, Fadlan la soo xariir taleefoonka: 206-684-3000.

Para servicios de interpretación por favor llame al 206-684-3000.

Para sa serbisyo ng tagapagpaliwanag, tumawag sa 206-684-3000.

Về dịch vụ phiên dịch xin gọi 206-684-3000.

Printed on 100% post-consumer paper using soy-based inks.

A note from the mayor

Dear Neighbor:

As mayor, I understand how important it is to manage one of the Northwest's most precious natural resources—water. I am pleased to report that Seattle Public Utilities is working hard every day to ensure that we continue to enjoy some of the best water in the nation delivered right to our taps.

You also can be proud of the job you are doing to conserve the water that we use every day. Thanks to our collective efforts, Seattle's average daily water usage is less today than it was in the 1960s—and getting lower. We are managing our water supply to mitigate the impacts of global warming while increasing our region's overall sustainability.

This report will give you an idea of how we manage our water resources—and your part in the process. I hope you will enjoy reading it.

Sincerely,

Mayor Greg Nickels

Everybody deserves clean water—and Seattle Public Utilities delivers

What makes up water quality?

Once again, the annual data is in, and Seattle area residents can feel the pride of knowing our water is among the nation's finest. What does this mean? It means Seattle's water boasts some of the lowest levels of contaminants of any major city in North America. And for every EPA-monitored substance, we easily best the standards.

How does Seattle get water this clean?

It's a combination of a *well-managed watershed, constant testing, and industry-leading treatment*, all stemming from Seattle Public Utilities' commitment to provide our region with an ever-improving resource. Our water, mostly, comes from rain and snowpack from the 103,839-acre Cedar River and Tolt River watersheds. These pristine areas are access-controlled; they have no industry and no residences, resulting in a source of exceptionally clean water.

Watershed management—it's not just for engineers.

Water quality this good doesn't just happen. It has to be managed for. Because we all want safe water, here's some information about how our water's quality is enhanced—every step of the way.

First, it's about rain and snow fall in the Cedar River and Tolt River watersheds, located east of Seattle in the Cascades. That rain and snowpack works its way into the two rivers, is then held in various dams and lakes within the mountains, and arrives via pipes at our two water treatment facilities. (There are also three SPU wells in Burien, used only for times of peak demand). The water is tested, up to 50 times a day, for bacteria, metals and chemical contaminants before and after it goes into the treatment facility.

At the Cedar facility, the water is screened for twigs and leaves—and goes through ozonation and ultraviolet light (UV) disinfection, which kills disease-causing Giardia and Cryptosporidium in the water. In addition, the water is fluoridated, controlled for corrosion and chlorinated. The water is so clean when it arrives at the facility, SPU actually has to do less treatment than occurs in other large cities. In addition, many of the pollutants the EPA requires us to test for show no detectable amounts.

The Tolt water supply goes through a similar process, with filtration, ozonation, fluoridation, pH and alkalinity adjustment and chlorination.

The finished supply from both facilities then goes to neighborhood reservoirs, which are managed for cleanliness and security. SPU is in the process of covering all these open reservoirs to further enhance health and safety.

Local water mains then bring water to area homes and businesses. Then we drink, shower, wash our clothes, water our yards and otherwise enjoy some of the best water around.

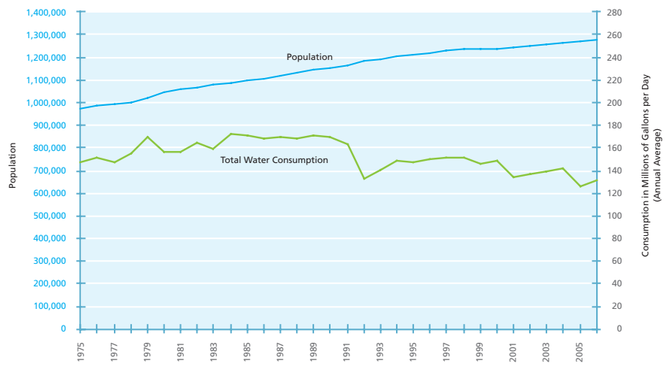
A collective pat on the back for our conservation efforts

When it comes to conservation, we're collectively doing great. Over the past 20 years, per capita water use has declined by one third! Seattle area residents and businesses deserve most of the credit for this remarkable conservation achievement. Thanks to your increasing conservation and better water management techniques at SPU, more water is now available to meet future needs.

Why is conservation so important? Consider this. Conservation means:

- We'll have enough water for ourselves and for future generations
- We can protect salmon for generations to come
- We have low-cost insurance for meeting possible future challenges from climate change
- Individuals may lower their water bills

Growth in Population and Water Consumption
Seattle Regional Water System: 1975-2006



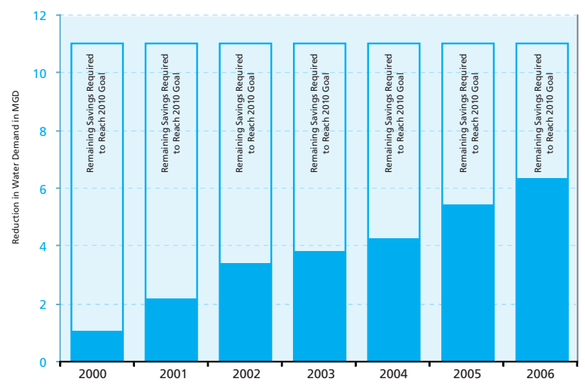
The Seattle region is using less water now than it did in 1975, even though many more people live here.

One of the reasons for this conservation success story is that in 2000, Seattle and 17 area water utilities formed the Saving Water Partnership. This partnership has as its goal to reduce water demand by one percent per year through 2010, a goal we are currently on track to meet despite expected growth in both the economy and our population. If we meet this goal, we can save 11 million gallons a day from 2000 to 2010. In 2006, conservation brought us 930,000 gallons per day closer to the goal. Since 2000, conservation efforts have saved enough water to refill the Volunteer Park Reservoir every three days (20 million gallons)!

SPU and the Saving Water Partnership offer several ways to help you to conserve.

- Rebates are available for high-efficiency clothes washers, automatic irrigation system upgrades, and business water use efficiency.
- There are simple everyday actions each of us can take that add up to big water savings for our city:
  - ~ Wash full loads of clothes and dishes
  - ~ Find and fix toilet and faucet leaks
  - ~ Install efficient showerheads and toilets
  - ~ Mulch your garden beds to retain moisture longer
  - ~ Shower instead of taking a bath

2010 Water Savings Targets & Estimated Cumulative Savings Since 1999
Conservation Programs Only



Seattle and the 17 water utilities that purchase Seattle's water are steadily making progress toward the goal of saving one percent each year through 2010. By 2010, the Seattle area will be saving 11 million gallons of water per day.

More tips for saving water, both indoors and out, are available at www.savingwater.org.

Water quality—the hard data

In order to ensure that tap water is safe to drink, the Environmental Protection Agency and/or the Washington State Board of Health prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration and/or the Washington State Department of Agriculture regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

In Seattle's surface water supplies, the potential sources of contamination include:

- microbial contaminants, such as viruses, bacteria and protozoa from wildlife.
- inorganic contaminants, such as salts and metals, which are naturally occurring.
- organic contaminants, which result from chlorine combining with the naturally occurring organic matter.

Our results

The results of monitoring in 2006 are shown in the table to the right. These results are for parameters regulated by the federal and state agencies. For other water quality information, please check our website (listed on the right) or call 206-615-0827. We can also send you a list of the 177 compounds for which we tested but did not find in our surface water supplies, including unregulated contaminants.

Water quality monitoring data can be difficult to interpret. To make all the information fit in one table, we used many acronyms that are defined below the table. In Seattle, if you live south of Green Lake, your water probably comes from the Cedar River. Areas north of Green Lake usually receive Tolt River water. Each source can provide water to other areas in Seattle if needed.

The Department of Health (DOH) conducts Washington's Source Water Assessment. According to DOH, all surface waters in Washington are given a susceptibility rating of "high," regardless of whether contaminants have been detected or whether there are any sources of contaminants in the watershed. The Seattle wells have been given a susceptibility rating of "low" because of the type of aquifer, depth of well and lack of contaminant detection. Information on the source water assessments is available from the DOH website at **http://www.doh.wa.gov/ehp/dw/default.htm**

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. Environmental Protection Agency/ Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

MORE INFORMATION

Seattle Public Utilities
Customer Service Center
206-684-3000

Water Quality
206-615-0827
seattle.gov/util/services/Water/Water_Quality
drinkingwater.quality@seattle.gov

Water Conservation
savingwater.org

Washington State Dept. of Health
doh.wa.gov/ehp/dw/

U.S. Environmental Protection Agency
epa.gov/safewater/

Safe Drinking Water Act Hotline
800-426-4791
hotline-sdwa@epamail.epa.gov

		EPA's Allowable Limits		Levels in Cedar Water		Levels in Tolt Water		
Detected Compounds	**Units**	**MCLG**	**MCL**	**Average**	**Range**	**Average**	**Range**	**Typical Sources**
RAW WATER								
Total Organic Carbon	ppm	NA	TT	0.6	0.3 to 1.1	1.3	1.1 to 1.8	Naturally present in the environment
Cryptosporidium	#/100L	NA	NA	ND	ND to 2	ND	ND to 2	Naturally present in the environment
FINISHED WATER								
Turbidity	NTU	NA	TT	0.5	0.2 to 1.6	0.05	0.01 to 0.13	Soil runoff
Fluoride	ppm	4	4	0.92	0.8 to 1.0	1.0	0.9 to 1.1	Water additive, which promotes strong teeth
Total Trihalomethanes	ppb	NA	80	32	19 to 43	40	24 to 63	By-products of drinking water chlorination
Haloacetic Acids(5)	ppb	NA	60	22	14 to 41	29	22 to 35	
Total Coliform	% positive samples	0	5%	Highest Month = 1.8% Annual Average = 0.2%				Naturally present in the environment
Chlorine	ppm	MRDLG = 4	MRDL = 4	Average = 0.8 Range = 0 to 2.2				Water additive used to control microbes

LEAD AND COPPER MONITORING RESULTS

Parameter and Units	MCLG	Action Level+	2006 Results*	Homes Exceeding Action Level	Source
Lead, ppb	0	15	5.3	0 of 54	Corrosion of household plumbing systems
Copper, ppm	1.3	1.3	0.13	0 of 54	

* 90th Percentile: i.e. 90 percent of the samples were less than the values shown.
\+ The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Definitions

MCLG: Maximum Contaminant Level Goal - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MCL: Maximum Contaminant Level - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MRDL: Maximum Residual Disinfectant Level - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG: Maximum Residual Disinfectant Level Goal - The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

TT: Treatment Technique - A required process intended to reduce the level of a contaminant in drinking water.

NTU: Nephelometric Turbidity Unit - Turbidity is a measure of how clear the water looks. The turbidity MCL that applied to the Cedar supply in 2006 is 5 NTU, and for the Tolt it was 0.3 NTU. 100% of the samples from the Tolt in 2006 were below 0.3 NTU.

NA: Not Applicable
ND: Not Detected
ppm: 1 part per million = 1 mg/L = 1 milligram per liter
ppb: 1 part per billion = 1 ug/L = 1 microgram per liter
1 ppm =1000 ppb

Here's what we're doing to conserve even more

There is a normal amount of water loss in the system before it gets to consumers. Pipeline leaks, firefighting, cleaning reservoirs—all of these things contribute to water loss. Every year, SPU applies new management strategies to reduce this so-called "non-revenue" water usage. For example, SPU is metering how much water is used to clean reservoirs.

Covering city reservoirs is leading to reduced evaporation and cleaning while also enhancing water quality. Pipeline leaks are located and analyzed to determine the most cost- and water-efficient actions.

AVERAGE SINGLE FAMILY HOUSEHOLD WATER USE FOR ONE MONTH	
Winter	5.4 CCF (or 4,039 gallons)
Summer*	7.7 CCF (or 5,759.5 gallons)

* Varies depending on your landscape watering (1 CCF = 748 gallons)

AVERAGE GALLONS PER HOUSEHOLD PER DAY		
	Inefficient Home	**Efficient Home**
Toilet	48	20
Clothes Washer	38	23
Shower/Bath	32	28
Faucet	23	20
Leaks/other	21	11
Total Indoor	162	102

Residents are conserving; the department is conserving; and businesses are also doing their part. Here are some of their success stories for 2006:

- Over the past 10 years, most of the automatic car washes in the service area have upgraded their technology to systems that reclaim most of the water used.
- Group Health Central Campus Hospital in Seattle retrofitted all its medical sterilizers in 2006, saving 33,740 gallons per day.
- University of Washington worked with SPU to save 100,000 gallons per day in 2006.
- Many laundromats in the service area have taken advantage of rebates and switched to efficient clothes washers.

Water myths—and facts

MYTH **Bottled water is safer to drink than tap water.**

FACT SPU water has to pass more stringent state and federal clean water standards compared to bottled water you buy in the store. When you drink Seattle water, you know where it came from, how clean it is and how it's been treated—which is less certain for many bottled waters.

MYTH **Climate change won't impact water supply.**

FACT Climate change is real. Climate change will affect snowpack levels, which is why SPU is managing our supply to take such changes into account. Fortunately, our water supply is not solely dependent on snowpack. We derive most of our drinking water from rainfall and can manage our system to control how much water we hold behind our dams. Add to that everyone's continuing help in conserving water use, and we feel confident that our current system will allow us to face the challenges climate change may pose.

MYTH **There is a lead problem in Seattle's drinking water supply.**

FACT While Seattle's water arrives at your home, school or business safely; old piping in buildings can be a source of lead. Lead levels are so low in our city water that Seattle is not required to measure it every year and is moving to a three-year cycle.

MYTH **If you don't hear water leaking in your toilet, you don't have a problem.**

FACT Silent leaks can be a major water waster inside the home. A leaking toilet can add $50 per year to your water and sewer bill and waste several thousand gallons in the process.

MYTH **There are more pollutants in drinking water today than there were 25 years ago.**

FACT Not necessarily. Twenty-five years ago, we did not have the technology available to determine what was in our drinking water. Today, we have sophisticated testing instruments that enable us to know more about our water than ever before.